

5 We claim:

1. In a hydraulic press having a first platen and a second platen wherein said first platen is movable against said second platen, having multiple dies, for containing bodies to be pressed, mounted on a center platen of said press and having a first hydraulic control system for moving said first platen against said second platen, a multiple position tool set comprising a plurality of modular press assemblies and an eject ram assembly, for ejecting said bodies, each of said modular press assemblies comprising:

a floating mount for attaching the press assembly to said first platen while allowing a lateral degree of freedom of said press assembly;

a hydraulic cylinder connected to an isolated hydraulic control system through a flow control valve, said hydraulic cylinder including a hydraulic reservoir and a piston;

a press ram operably connected to said piston and advanced by a combination of said first hydraulic system, and said isolated hydraulic system moderated by said flow control valve.

20 2. The multiple position tool set of claim 1 wherein the floating mount further comprises:

a collar for receiving said hydraulic cylinder and having an outwardly extending flange, and a clamp ring fixedly attached to said first platen over said collar flange for slidably confining the collar against the first platen.

5           3. The multiple position tool set of claim 1, wherein said floating mount comprises a mounting plate having oversized bolt holes, and bolts for slidably securing the mounting plate against the first platen.

10           4. In a hydraulic press having a first platen, a second platen, means for forcibly advancing said first platen against said second platen and multiple dies, for containing bodies to be pressed, mounted between said first platen and said second platen, an improvement comprising:

15           a plurality of modular press assemblies mechanically connected to said forcible advancing means, each having a press ram operably connected to isolated hydraulic means for varying the advance of said press ram;

            adjustable means for controlling said isolated hydraulic means to divide and distribute the pressing force of said first platen among said press assemblies;

20           adjustable mounting means for connecting said modular press assemblies to said forcible advancing means in approximate coaxial alignment with said dies, such that each of said press rams may be advanced by said hydraulic means or by said means for advancing said first platen, while automatically producing and maintaining exact said coaxial alignment as said press rams and said dies mate; and

            means for ejecting said bodies from said dies.

25           5. The multiple position tool set of claim 1 wherein said floating mount comprises an outwardly extending flange on said modular press assembly and a clamp ring having

5 an inner flange and being adapted to surround the modular press assembly and confine the flange of the modular press assembly against the flange of the clamp ring.

6. The multiple position tool set of claim 5 wherein said clamp ring is sized to allow movement of the modular press assembly in any direction parallel to the abutting  
10 surfaces of said flanges and being provided with bolt holes for securing the clamp ring to said first platen, such that the modular press assembly may be moved to a selected location, in alignment with said corresponding die and bolted securely in position.

7. The multiple position tool set of claim 1 wherein said floating mount comprises  
15 a mounting plate having a first set of bolt holes for securing said modular press assembly to said mounting plate and a second set of bolt holes for securing said mounting plate to said first platen, and said second set of bolt holes are oversized, such that the modular press assembly may slide to a selected location, in alignment with said corresponding die while bolted securely to said first platen.

20

8. A process for independently adjustable multiple position pressing comprising the steps of:

providing a hydraulic press having means for forcibly advancing a first platen against a second platen, having a plurality of identical dies mounted thereon;

25 providing a plurality of identical modular press assemblies, each having a press ram operably connected to independent hydraulic means for forcibly advancing said press ram;

5            providing means for connecting the hydraulic press assemblies together in parallel; automatically dividing and equalizing the pressing force of said hydraulic means among all press assemblies;

             providing adjustable mounting means for mounting said modular press assemblies, on said first platen in coaxial alignment with said dies;

10          disposing material to be pressed in said dies;

             advancing said first platen, such that said press rams apply the same pressure to said material in said dies;

             providing means to isolate each modular press assembly from said independent hydraulic means for dividing the total force available from said hydraulic press equally  
15          among each of the plurality of press assemblies that are still connected.

             9. The improvement in a hydraulic press of claim 4, wherein said means for ejecting pressed bodies from said dies comprises:

             means for forcibly advancing said second platen relative to said dies; and  
20          multiple eject rams mechanically connected to said second platen in corresponding coaxial alignment with said dies.

             10. The multiple position tool set of claim 1, wherein said eject ram assembly comprises:

25          a second hydraulic control system for moving said second platen relative to said dies; and

5           a plurality of eject rams, corresponding to said press assemblies , mechanically  
connected to said second platen for ejecting pressed bodies from said dies, said eject rams  
being positioned in coaxial alignment with said dies.

10           11. The multiple position tool set of claim 10 wherein said second platen is  
provided with a single eject ram, mounted thereon and said plurality of eject rams is  
connected to said second platen by a bridge assembly comprising:

          a bridge plate mounted on said single eject ram and having said plurality of eject  
rams mounted on said bridge plate;

          a die platen spaced apart from said center platen and connected by struts;  
15   said dies being mounted on said die platen;

          said die platen having a plurality of apertures for passing said eject rams there  
through.